REMARKS

The Office Action dated April 8, 2008 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-19 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Claim 20 has been added. No new matter has been added and no new issues are raised which require further consideration or search. Therefore, claims 1-20 are currently pending in the application and are respectfully submitted for consideration.

Claims 1-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over International Publication Number WO 02/073933 to Hovell (hereinafter Hovell) in view of U.S. Patent No. 7,085,270 to Inouchi (hereinafter Inouchi). The rejection is respectfully traversed for at least the following reasons.

Claim 1, upon which claims 2-7 are dependent, recites an apparatus, which includes a name resolving unit configured to perform name resolving, and a first connection unit configured to provide a first direct connection to a first network, using a first network protocol. The apparatus further includes a second connection unit configured to provide a second direct connection to a second network using a second network protocol, wherein, when the name resolving unit in the first network must forward a name resolving request to a domain name service server in the second network, the name resolving request is sent directly from the name resolving unit in the first

network to the second network. The apparatus further includes an address translation unit configured to perform address translation between the first network and the second network. The name resolving unit and the address translation unit are configured to co-operate in order to translate addresses upon performing name resolving.

Claim 8, upon which claim 9 is dependent, recites a system, which includes a network name resolving element and at least two network address translating elements. The network name resolving element is configured to perform name resolving in a network system which includes a first network using a first network protocol and a second network using a second network protocol. The network element includes a name resolving unit configured to perform name resolving, and a first connection unit configured to provide a first direct connection to the first network. The network element further includes a second connection unit configured to provide a second direct connection to the second network, such that when the name resolving unit in the first network must forward a name resolving request to a domain name service server in the second network, the name resolving request is sent directly from the name resolving unit in the first network to the second network. The network element further includes an address translation unit configured to perform address translation between the first network and the second network. The name resolving unit and the address translation unit are configured to co-operate in order to translate addresses upon performing name resolving. The address translation unit is configured to select a particular network address translating element to be used for a connection between a first host in the first

network and a second host in the second network. The address translation unit is configured to add network address translating element information to the resolved address. The address translation unit is configured to select a network address translating element based on information regarding the load on the network address translating element. The network address translating elements are configured to send load information to the network element.

Claim 10, upon which claims 11-18 are dependent, recites a method, which includes processing a name resolve request to obtain an address, and performing address translation between a first network using a first network protocol and a second network using a second network protocol. The name resolve request processing and the address translation are performed in a dedicated network name resolving element configured to perform name resolving located in the first network and having a first direct connection to the first network and a second direct connection to the second network, such that when the name resolving unit in the first network must forward a name resolving request to a domain name service server in the second network, the name resolving request is sent directly from the name resolving unit in the first network to the second network.

Claim 19 recites an apparatus, which includes means for performing name resolving, and means for providing a first direct connection to a first network using a first network protocol. The apparatus further includes means for providing a second direct connection to a second network using a second network protocol, such that when the means for performing name resolving in the first network must forward a name resolving

request to a server in the second network, the name resolving request is sent directly from the means for performing name resolving in the first network to the second network. The apparatus further includes means for performing address translation between the first network and the second network. The means for performing name resolving and the means for performing address translation are configured to co-operate in order to translate addresses upon performing name resolving.

Claim 20 recites a computer program, embodied on a computer readable medium, configured to control a processor to implement a method. The method includes processing a name resolve request to obtain an address, and performing address translation between a first network using a first network protocol and a second network using a second network protocol. The processor is located in a dedicated network name resolving element configured to perform name resolving located in the first network and having a first direct connection to the first network and a second direction connection to the second network, such that when the name resolving unit in the first network must forward a name resolving request to a domain name service server in the second network, the name resolving request is sent directly from the name resolving unit in the first network to the second network.

Thus, according to embodiments of the invention, a DNS related translation is moved from a network translation element to a network element which performs the name resolving. Thus, the load on the network address translation element is reduced. Moreover, since it is not necessary to forward name resolve requests via the network

address translation element because the network element for resolving name request is able to provide a direct connection to both networks, the number of messages required for a name resolve request is reduced. This reduces the communication load on the whole network system.

As will be discussed below, the combination of Hovell and Inouchi fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the advantages and features discussed above.

Hovell generally discloses an apparatus for providing communication between a network device in a first network and a network device in a second network, where the first network operates in accordance with a first communication protocol and the second network operates in accordance with a second communication protocol. The apparatus includes first means for assigning an alias to a target network device in the first network, the alias being compatible with the communication protocol of the second network. The apparatus includes second means for translating the assigned alias to an address for the target network device. The translated address is compatible with the communication protocol of the first network. The first means and the second means are separately addressable in one or both of the networks. The assigned alias corresponds to an address of the second means, such that, when a network device in the second network sends a communication using an address comprising the assigned alias, the communication is routed to the second means. The second means then translates the alias into the address

of the target network device in the first network and sends the communication into the first network. (see Hovell at Abstract).

Inouchi generally discloses a translator which includes a unit for communication with a Domain Name Service – Application Level Gateway (DNS-ALG). The DNS-ALG detects a domain name service (DNS) query to a destination terminal, and performs a translation to IPv6. The DNS-ALG translates a destination temporary IPv6 address, in which a real address of IPv4 acquired from a DNS server of the destination terminal is added with a virtual IPv6 prefix, to a destination temporary IPv4. The IPv6-based DNS-ALG cooperates with the translator to permit alleviation of processing load on the DNS-ALG and reduction in capacity of a translation table of large capacity. (see Inouchi at Abstract).

Applicants respectfully submit that the combination of Hovell and Inouchi fails to disclose, teach, or suggest, all of the elements of the present claims. For example, the combination of Hovell and Inouchi fails to disclose, teach, or suggest, at least, "wherein, when the name resolving unit in the first network must forward a name resolving request to a server in the second network, the name resolving request is sent directly from the name resolving unit in the first network to the second network," as recited in claim 1, and similarly recited in claims 8, 10, 19, and 20.

The Office Action correctly concludes that Hovell fails to disclose, or suggest, "wherein, when the name resolving unit in the first network must forward a name resolving request to a domain name service server in the second network, the name

resolving request is sent directly from the name resolving unit in the first network to the second network," as recited in claim 1, and similarly recited in claims 8, 10, 19, and 20. Furthermore, Inouchi fails to cure the deficiencies of Hovell.

In the "Response to Arguments" section, the Office Action cited col. 2, lines 36-32, and Figures 1, 14, and 15 of Inouchi as disclosing sending a request directly from a name resolving unit in a first network to a second network. However, a detailed analysis of Inouchi reveals that Inouchi fails to disclose, or suggest, sending a name resolution request directly from a name resolving unit in a first network to a DNS server in a second network.

Inouchi discloses the use of a DNS-ALG combined with a translator, such as a NAT-PT, to facilitate communication between a node in a IPv6 network, and a node in a IPv4 network. Specifically, upon initiation of communication, a terminal 4a makes a DNS query to a DNS server 3a in order to obtain an address of a name of a terminal 4c. Because the terminal 4c is located in a different virtual private network, the DNS server 3a makes a DNS query to the next DNS server, i.e. DNS-ALG 2a. If the DNS-ALG does not know the IP address corresponding to the terminal 4c, it modifies the QTYPE of the DNS query and sends the modified DNS query to the next DNS server 8, and waits for a DNS response. The DNS server 8 sends a DNS query to the next DNS server, i.e. DNS-ALG 2b. The DNS-ALG server 2b modifies the QTYPE and sends the modified DNS query to the next DNS server 3c. The DNS server responds with an IPV4 address corresponding to the terminal 4c, and returns the address to DNS-ALG 2b. Each DNS

server returns the address to the previous DNS server until DNS server 3a returns the address to terminal 4a. (see Inouchi at col. 6, line 51 – col. 7, line 15).

However, the use of a DNS-ALG combined with a translator fails to disclose sending a name resolution request directly from a name resolving unit in a first network to a DNS server in a second network, because the DNS server 3a, which originally receives the name resolution request in an IPv4 network, cannot directly send the name resolution request to the DNS server 8 in the IPv6 network. Instead, as discussed above, Inouchi discloses an additional step of forwarding the request to the DNS-ALG 2a, which forwards the request to the translator 1a, which finally forwards the request to DNS 8. Thus, if VPN #1 included multiple DNS servers, each DNS server would have to forward the request through the DNS-ALG 2a and the translator 17a, instead of forwarding the request directly to DNS server 8. This increases the traffic at DNS-ALG 2a and translator 1a.

Thus, the issue is not whether the combined DNS-ALG and translator is capable of sending a name resolution request directly to a DNS server in a second network. Instead, the issue is whether the DNS server (e.g. DNS 3a, DNS 3c, and DNS 8) is capable of sending a name resolution request directly to a DNS server in a second network. Applicants respectfully submit that the DNS server of Inouchi does not have a direct connection to a second network, wherein when the name resolving unit in the first network must forward a name resolving request to a server in the second network, the name resolving request is sent directly from the name resolving unit in the first network

to the second network. This is because, as discussed above, DNS server 3a (or DNS server 3c), which is located in the IPv4 network, cannot directly send a request to DNS server 8, which is located in the IPv6 network, because the request must go through DNS-ALG 2a and translator 1a. Likewise, DNS server 8 cannot directly send a request to either DNS server 3a or DNS server 3c because the request must either go through DNS-ALG 2a and translator 1a, or DNS-ALG 2b and translator 1b.

In contrast, according to embodiments of the present invention, an enhanced DNS server comprises a name resolving function, a direct link connection to an IPv6 network, a direct link connection to an IPv4 network, and an address and protocol translation function. Thus, all DNS related requests are handled by the enhanced DNS server in an IPv6 network. When the DNS server in the IPv6 network must forward a name resolution request to another DNS server in an IPv4 network, it can sends the name resolution request directly, without the need to traverse a translator, such as a NAT-PT server. (see Specification at page 8, line 26 – page 9, line 14).

In the "Response to Arguments" section, the Office Action also stated, in response to Applicants' arguments that the present specification discloses that in contrast to the prior art, the name resolving unit forwarded to an enhanced DNS server does not have to be transmitted via a NAT-PT server, that "limitations appearing in the specification, but not recited in the claims are not read into the claim." (see Office Action at pages 11-12). However, Applicants' argument illustrates the limitation of "wherein, when the name resolving unit in the first network must forward a name resolving request to a domain

name service server in the second network, the name resolving request is sent directly from the name resolving unit in the first network to the second network," which is recited in the claims. Specifically, because the prior art requires the DNS server to transmit the request via a NAT-PT server, the prior art does not provide a mechanism for directly sending the name resolving request to a DNS server in the second network. Thus, Applicants respectfully submit that Applicants' argument is directed toward a claimed limitation, not merely a feature of the specification as the Office Action alleges.

Finally, in the "Response to Arguments" section, the Office Action indicated the usage of a NAP-PT server in the present application as showing in Figure 4, and that Figure 4 explains the usage of NAP-PT for the connection based on load information. (see Office Action at page 12). As the specification makes clear, according to embodiments of the invention, once an enhanced DNS server returns the address of the second host to a first host, the first host subsequently communicates with a second host. Because the hosts reside in two different networks, a NAP-PT is required for the direct connection between the two hosts. (see Specification at page 10, lines 1-35.) Thus, the NAP-PT is not used during the actual name resolution process, where the DNS server in a first network forwards a name resolving request to a DNS server in a second network. As discussed above, the DNS server communicates the name resolving request directly to the DNS server in a second network.

Thus, the specification, and Figure 4, detail a process where the DNS server not only returns the address of the second host, but also returns the address of a NAP-PT

server (when there are multiple NAP-PT servers). This causes the first host to use a particular NAP-PT server to directly communicate with the second host, and thus, provides load balancing of the NAP-PT servers. (see Specification at page 10, lines 1-35; page 11, lines 1-25; Figure 4). Thus, the presence of the NAP-PT server in the present specification does not refute Applicants' arguments, as the enhanced DNS server does not forward a name resolving request to the NAP-PT server.

Therefore, for at least the reasons discussed above, the combination of Hovell and Inouchi fails to disclose, teach, or suggest, all of the elements of independent claims 1, 8, 10, 19, and 20. For the reasons stated above, Applicants respectfully request that this rejection be withdrawn.

Claims 2-7 depend upon independent claim 1. Claim 9 depends upon independent claim 8. Claims 11-18 depend upon independent claim 10. Thus, Applicants respectfully submit that claims 2-7 and 11-18 should be allowed for at least their dependence upon independent claims 1, 8, and 10, and for the specific elements recited therein.

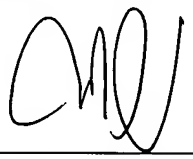
For at least the reasons discussed above, Applicants respectfully submit that the cited prior art references fails to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It is therefore respectfully requested that all of claims 1-19 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by

telephone, the applicant's undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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Enclosures: Additional Claim Fee Transmittal
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